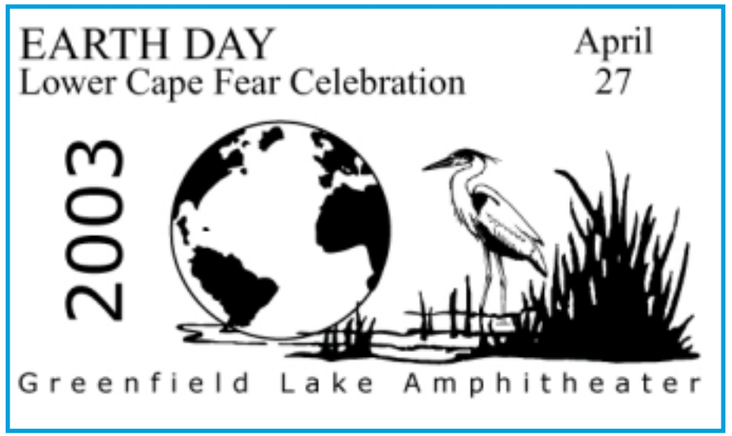

The Lower Cape Fear Celebration of Earthday will be held on Sunday, April 27th, 2003 at the Greenfield Lake Amphitheater. The event will feature live music, 35+ exhibitor booths, food vendors and a Kid's Eco Zone. Storm Water Services is a proud sponsor of this event. Come join the fun!

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STORM WATER WATCH

Wilmington Water Quality Report Inside...

STORM WATER WATCH

WATER QUALITY ISSUE

WINTER 2002

A Publication of the City of Wilmington's Storm Water Services

CITY-MAINTAINED STORM WATER FACILITIES

13,000	CATCH BASINS & MANHOLES
250+	MILES OF PIPE
125+	MILES OF OPEN DRAINAGE (DITCHES, CREEKS, AND CHANNELS)
11+	MILES OF CULVERTS UNDER ROADS
145+	ACRES OF RETENTION PONDS (RANDALL POND & SILVER STREAM)

GREENFIELD LAKE

LOVE GROVE TIDEGATES

CITY REQUIRED TO APPLY FOR FEDERAL STORM WATER PERMIT

Currently, 40% of US waterbodies do not meet water quality standards. The main source of these impairments is polluted storm water runoff. When it rains, water that runs off of streets, parking lots, rooftops and construction sites carries sediment, motor oil, yard debris, pet waste, and other pollutants into nearby storm drains and drainage ditches. Once this runoff enters the storm sewer system, it flows- untreated -into our local streams and waterways. This pollution is a major threat to public health and water quality.

The Storm Water Phase II Final Rule is the EPA's effort to preserve, protect and improve the nation's water resources from polluted runoff. These regulations require municipalties with storm sewer systems serving urbanized areas with populations under 100,000 to obtain a National Pollutant Discharge Elimination System (NPDES) permit under the Clean Water Act. Municipalities that discharge runoff directly into surface waters are required to get an NPDES permit. This permit requires the City of Wilmington to establish and maintain a storm water management plan with the aim of protecting water quality and human health. The City of Wilmington will apply for this comprehensive permit in March of 2003.

The intended goals of the NPDES Phase II regulations are to control polluted runoff and therefore protect and improve water quality, safeguard human health, protect aquatic habitats and encourage stewardship and pollution prevention within the community. The six mandated components of NPDES Phase II are:

- Public Education
- Public Involvement
- Illicit Discharge Detection and Elimination
- Construction Site Runoff Controls (1-5 acres)
- Post-construction Site Runoff Controls
- Good Housekeeping/Pollution Prevention of Municipal Facilities

Fortunately, the City of Wilmington has several programs already in place to meet pending NPDES rules. In particular, the City is on the forefront of providing outreach, education and public involvement in the community with programs such as the *Keep It Clean!* Storm Drain Awareness Campaign, school Enviroscape presentations, a stormwater newsletter & fact sheet series and public meetings regarding capital improvement projects.

Inside This Issue

2001-2002
Summary of Wilmington Watersheds Project Report

Dr. Michael Mallin, lead scientist for the Wilmington Watersheds Project and the Tidal Creeks Project, recently provided Storm Water Services with an Executive Summary of 2001-2002 water quality monitoring results for Wilmington watersheds. The following is taken from that document.

Barnards Creek Watershed

There was a general fecal coliform bacterial pollution problem at all stations sampled throughout the Barnard's Creek watershed. Lower Barnard's Creek at River Road had occasional poor water quality as judged by turbidity and fecal coliform counts, although dissolved oxygen at this station showed improvement over last year. Outflowing water from a wet detention pond on the Echo Farms Golf Course had higher levels of phosphates and pH than incoming water. Other nutrients were also somewhat higher in the stream exiting the course. However, these nutrient concentrations were low in comparison to other area golf courses sampled, possibly because of the nutrient uptake occurring in the natural wetland through which the outfall stream passes before leaving the course.

Bradley Creek Watershed

Turbidity was not problematic during 2000-2001, except occasionally in the upper south branch of the creek. Low dissolved oxygen was an occasional problem in brackish waters of the creek during late spring and summer. Elevated nitrogen and phosphorous levels enter the creek in the north and south branches, and two algal blooms occurred in the south branch during the year. Fecal coliform bacteria were sampled only at the station at College Acres, which proved to be contaminated on 83% of the occasions sampled.

Burnt Mill Creek Watershed

Fecal coliform bacteria and low dissolved oxygen were the primary problems in Burnt Mill Creek. A sampling station at Princess Place had substandard dissolved oxygen and poor microbiological water quality, exceeding the standard for human contact in 7 of 11 samples. There were also two algal blooms. The effectiveness of Anne McCrary wet detention pond on Randall Parkway as a pollution control device decreased from last year with a reduction in conductivity and an increase in nitrate loading to the creek. Water quality worsened from where it exited the pond to the downstream Princess Place sampling station.

Greenfield Lake Watershed

All three tributaries of Greenfield Lake (near Lake Branch Drive, Jumping Run Branch, and Lakeshore Commons Apartments) suffered from low dissolved oxygen, high fecal coliform counts, and algal blooms occurred several times in the lake. Nutrient loading was also a problem in the stream near Lakeshore Commons and in the south end of the lake. According to a UNCW study, waterfowl do not appear to be the major contributors of fecal coliform bacteria to the lake; possibly dogs and cats around the lake and in the areas drained by tributaries are the major sources of this human health pollutant. The Silver Stream retention pond did a very good job of reducing pollutant loads to the lake.

Hewletts Creek Watershed

This creek received high nutrient loading in its three upper branches, with several minor algal blooms occurring in the south branch near Pine Grove Road. The middle branch had high nutrient concentrations largely derived from two golf courses, while low dissolved oxygen occurred periodically in the north, south, and middle creek sites. All three tributary stations and the upper main section of the creek exceeded the safety standard for human contact water on several

Howe Creek Watershed

The creek maintained generally good water quality in 2000-2001. Algal blooms were not found, turbidity was generally low, and low dissolved oxygen was not problematic. Fecal coliform bacteria were not sampled during 2000-2001.

Smith Creek Watershed

Smith Creek had moderate water quality problems including turbidity, elevated suspended sediments, and algal blooms. Fecal coliform bacteria counts exceeded the state standard for human contact waters at both sampling sites on a number of occasions. Low dissolved oxygen problems occurred 25% of the time.

Whiskey Creek Watershed

Whiskey Creek had relatively high nutrient loading. There were several incidents of low dissolved oxygen and high turbidity occurred periodically at one sampling site. Fecal coliform bacteria were not sampled in 2000-2001 in this creek.

Upper and Lower Cape Fear Watersheds (Downtown area)

Water quality at the sampling station behind the Wilmington Police Station had high nitrate concentrations, although they were lower than in previous years. Fecal coliform concentrations often exceeded the state standard for human contact at this station as well. Algal blooms and turbidity from Greenfield Lake were also sometimes transported to the Cape Fear River through this station.

WATER QUALITY DEFINITIONS

Algal Bloom When excess nutrients cause an explosion of plant life that in turn depletes oxygen in the water needed by fish and other aquatic life for survival. *Sources: Lawn fertilizer, pet waste.*

Dissolved Oxygen (DO) The amount of oxygen in the water. Aquatic organisms require adequate levels of DO to survive.

Fecal Coliform Bacteria A type of bacteria present in the feces of warm-blooded animals. *Sources: Animal & human waste.*

Heavy Metals Elements and compounds that settle from the atmosphere and are carried into waters that, in concentration, can harm living organisms. *Sources: Vehicle brake dust, industrial activity.*

Nutrients Nitrogen and phosphorous are the primary nutrients that cause weed & algae growth in water. *Sources: Fertilizer, pet waste, car wash soap & sanitary sewer overflows.*

Pathogens Microorganisms that can cause disease.

Sediment Solid particles that wash from land into water bodies as a result of human or natural activities. *Sources: Construction sites, eroding stream banks, bare spots on lawns.*

Turbidity A measure of water clarity (muddiness).

Watershed The land that water flows across or under on its way to a stream, lake or other waterbody. Everyone lives in a watershed.